

ABSTRACT OF THE DISCLOSURE

A phosphor thin film includes a matrix material expressed by a composition formula $A_xB_yO_wS_z$, and a substance functioning as a luminescence center in the matrix material. In the 5 composition formula, A represents at least one element selected from the group consisting of Mg, Ca, Sr, Ba, and Zn; B represents at least one rare-earth element selected from the group consisting of Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu; O represents oxygen atoms; and S represents 10 sulfur atoms, respectively. Molar ratios are respectively set as $0 < x < 5$, $0 < y < 4$, $0 \leq z < 8$, and $0 \leq w < 8$, and $0 = z = w$ never holds true.